

REMARKS

Summary

Claims 1-3, 5-10 and 12-47 were pending in the application. Claims 1-3, 5-10 and 12-40 were allowed and Claims 41-43 and 45-47 were rejected in the present Office Action. Claim 41 has been amended. No new matter is added with this amendment. Claim 44 is objected to as being dependent upon a rejected claim. The Applicant has carefully considered the references and the reasons for rejection advanced by the Examiner, and respectfully traversed the rejections in view of the discussion presented below.

Allowed Claims

The Applicant appreciates the Examiner's allowance of claims 1-3, 5-10 and 12-40. Examiner further stated that claim 44 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Rejection of Claims

Claims 41-43 and 46 were rejected under 35 U.S.C. §102(e) as being anticipated by Heyde et al (U.S. Pat. No. 6,756,942 B2). Claims 45 and 47 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hyde in view of Van Hoozen et al (U.S. pat. 6,181,279 B2).

Claim 44 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 41 as amended, recites that a patch antenna apparatus comprises a metal frame surrounding a peripheral surface of the dielectric substrate. In addition, the metal frame has an opening, which is disposed not to overlap with the dielectric

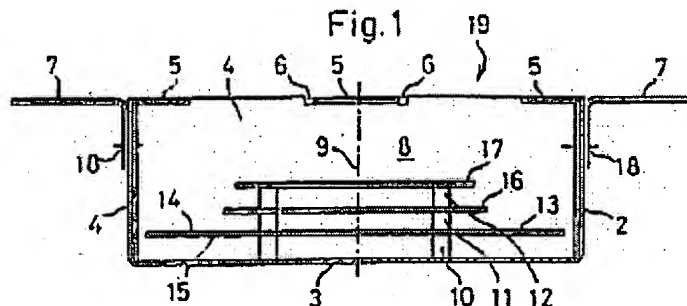
substrate in a plan view of the patch antenna. It should be noted that an example of the patch antenna apparatus is shown in pages 8-12, lines 3-5 and Figs 1-3.

Heyde discloses a broad band communications antenna. Figure 1 shows a cross-sectional view through the antenna according to the invention. Col. 1, ll. 57-58. Heyde discloses:

The housing 2 is essentially open at the top except for the lugs 5, of which there are four here, in each case arranged at the center of the side surfaces and projecting into the interior of the housing 2. These four lugs 5, which are right-angled here, reduce the cross-sectional size symmetrically, in a plan view.

Col. 2, ll. 24-30.

It is unclear whether Heyde discloses a dielectric substrate as in claim 41. However, assuming the conductive layer on the baseplate is a dielectric substrate, then the opening does project over the dielectric substrate. Figure 1 (below) shows the lugs 5 projecting over the conductive layer 14.



Claim 41 as amended, comprises an opening, which is disposed not to overlap with the dielectric substrate in a plan view of the patch antenna. As shown above, Heyde does not disclose an opening that does not overlap the dielectric substrate because the lugs overlap the conductive layer. Heyde discloses an opening that includes lugs that "project into the interior of the housing" rather than an opening that disposed not to overlap with the dielectric substrate. Col. 2, ll. 27-28. Accordingly, Heyde does not disclose all of the limitations of claim 41 and it should be allowed.

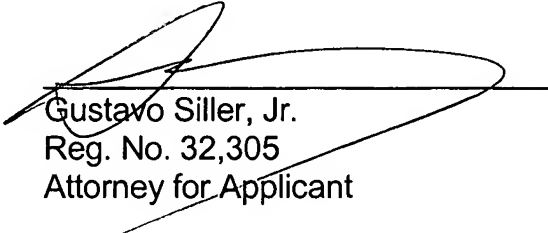
Van Hoozen fails to disclose all the elements of claim 41 and therefore dependent claims 45 and 47. Specifically, Van Hoozen does not disclose "a metal frame surrounding a peripheral surface of the dielectric substrate." Van Hoozen discloses a shielding element that the patch electrode sits on, as well as disclosing vias surrounding the patch electrode. There is no surrounding metal frame. Likewise, Van Hoozen also fails to disclose an "opening of the metal frame disposed not to overlap with the dielectric substrate in a plan view of the patch antenna." For at least these reasons, claim 41 is allowable and claims 42-47 are allowable as depending from an allowable claim.

Conclusion

The Applicant respectfully submits that pending claims 41-47 are in condition for allowance. If for any reason, the Examiner is unable to allow the application and believes that a telephone interview would be helpful to resolve any remaining issues, please contact the undersigned attorney.

Respectfully submitted,

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Gustavo Siller, Jr.
Reg. No. 32,305
Attorney for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60611-5599
(312) 321-4200